

**A METHOD OF SECURING RAILING STRUCTURES FOR APPEARANCE AND
STRENGTH**

BACKGROUND – FIELD OF THE INVENTION

Current methods for building and installing items such as wooden railings are time consuming and limited in effectiveness. Conventional connection methods, (e.g., toe-nailing; conversely, the use of screws at a 45% angle through one material into another) can fail on several counts. These methods lack strength, are often compromised structurally in a short time frame, and have glaringly visible nails or screws.

Proposed installation method can be accomplished efficiently and expertly with relatively basic carpentry skills. Invention solves and eliminates the problem of marginally strong and unsightly connections by having fastener locked securely within materials, resulting in no visible fasteners as well as superior strength in the connection.

BACKGROUND – PRIOR ART

Other recent approaches to installing items such as wooden railings have included the use of brackets or such like in order to overcome the failings of such older methods as toe-nailing. While many of these systems are marked improvements over said older methods, they are unattractive due to the visibility of both the brackets and the fasteners used.

PRIOR ART REFERENCES

Patent#	Country	Date
4,688,769	USA	August 25, 1987
4,792,122	USA	December 20, 1988
4,899,991	USA	February 13, 1990
5,474,279	USA	December 12, 1995
6,290,214	USA	September 18, 2001
6,527,469	USA	March 4, 2003
6,557,831	USA	May 6, 2003

SUMMARY OF THE INVENTION

A system that includes a main fastener supplemented by a locking fastener, all parts of corrosion-proof materials such as any of the alloys known as "stainless steel". Fasteners deployed in such a manner as to render them not visible to the end user of any assemblies thus secured.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The fastening system shall consist of elements to fasten assemblies, typically to such vertical structures as a post or such like, said fastening elements to be hidden from common view after installation. Fastening elements shall be concealed typically by placement in a groove or channel let in to the body of the assembly. Fastening elements shall be corrosion-proof or otherwise secured against staining of: 1) the assemblies fastened, 2) the vertical structures, or 3) other materials in close proximity to said assemblies or said structures.

Fastening elements shall consist of both a Main Fastener and a Locking Fastener, installed as a single connection at each point where assemblies are to be joined to vertical structures.

MAIN FASTENER

A threaded fastener, typically a lag screw or such like, of a design which incorporates a hole at right angles to the main axis of the fastener. A typical configuration would be a 4" lag-type screw with a flattened shank at the head, with a hole piercing the flattened area. The material shall be specified as corrosion-proof.

LOCKING FASTENER

A fastener, typically a wood screw or such like, of a design which allows it to be easily driven through the pierced hole of the main fastener. A typical configuration would be a 1" wood screw of a shank size such that same may readily secure the Main Fastener to the material to be secured. The material shall be specified as corrosion-proof.

A TYPICAL GROOVE IN THE ASSEMBLY TO BE FASTENED

A groove, typically integral to the profile of a horizontal member of the assembly to be fastened. Other embodiments would include a groove cut, chiseled, routed or gouged into the end portion of said horizontal member; two channels in the profile of the horizontal member; such like structures as may be adapted to the purpose of accomodating the fasteners while allowing them to be concealed after installation.

DESCRIPTION OF THE DRAWINGS

Fig. 1: An isometric drawing, depicting a typical main fastener **1**, with a typical locking fastener **2** in position to be engaged with **1**.

Fig. 2: An exploded drawing, depicting a main fastener used as an upper fastener **3**, said fastener ready to be inserted into a typical post **4**. A second main fastener used as a lower fastener **5**, ready to be inserted into a typical post **4**.

Fig. 3: A detailed isometric drawing, depicting a main fastener **6**, said fastener inserted into a typical post **7**, with a typical locking fastener **8** ready to be inserted through the hole in the head of said main fastener **6**. The locking fastener will be fastened into a typical upper assembly, as the upper rail **9**; the main fastener **6** and the locking fastener **8** will both be hidden from view by the profile of said upper rail **9**.

Fig. 4: A detailed isometric drawing, depicting a main fastener **10**, said fastener inserted into a typical post **11**, with a typical locking fastener **12** ready to be inserted through the hole in the head of said main fastener **10**. The locking fastener will be fastened into a typical lower assembly, as the lower rail **13**; the main fastener **10** and the locking fastener **11** will both be hidden from view by the profile of said lower rail **13**.

Fig. 5: An exploded isometric drawing, depicting a typical cap rail **14** positioned above fastener-and-upper rail assembly **15**.

CONCLUSION, RAMIFICATIONS, AND SCOPE

Stated method for processes such as railing attachments allows the use of fasteners such that they shall be hidden from view after installation. Concealing the fasteners maintains the high appearance values of carefully-crafted structures such as deck railings, stair railings, privacy screens, and such like.

Stated use of corrosion-proof fasteners maintains said high appearance values by preventing staining or other degradation of fine materials such as Western Redcedar, Coast Redwood, Oregon White Oak and such like due to harmful interaction of fastener material with these beautiful but acidic materials.

Preferred Embodiment states that Stainless Steel alloys such as ASTM 316 should be used for both the Main Fastener and the Locking Fastener. Use of this alloy or an equivalent imparts greater strength to the final installation, due to the ability of suchlike alloys to resist all natural corrosion such as that caused in a marine terrestrial environment.

Use of ASTM 316 for Main Fastener also increases durability of the connection due to the high tensile and shear strength of suchlike alloys relative to the more common steel formulations often used in prior fastening systems.

The combination of concealment of fasteners plus the use of corrosion-proof alloys assure that there will be no hazards presented to humans, domestic animals, fabrics or suchlike due to protrusions of fastener heads. In like manner, there will be no exposed wood fibers that have been torn by normal installation stresses (when assembly materials are of wood, this has been a common problem in prior art).